

Dual Flush Water Saving Toilet System

Abstract

A dual flush toilet system (120) with a water tank (122), a discharge opening (159), a flush valve (156), and a toilet bowl, is provided with a dual action flush lever (130) for actuating a full or a partial flush operation, an engaging device (161) with a V-shaped groove (160) for selectively engaging the flush valve (156) in both upward or downward movements and rotations about a vertical axis, a travel limit device (141) for limiting the maximum vertical travels of the flush valve (146), a load device (420) for selectively applying a downward load to the flush valve (156) to forcibly push the flush valve (156) down to close the discharge opening (159), and an electronic control system (1020) for electronically regulating the volumes of water used to flush the dual flush toilet system (120) according to the wastes in the toilet bowl. The dual flush toilet system (120) can perform a full or a partial flush operation through controlling the volumes of the water used to flush the wastes by selectively limiting the maximum travels of the flush valve (156), applying a downward load to forcibly push the flush valve (156) down to close the discharge

opening (159), using an electronic control device (1020) to control the duration of flushing, or utilizing the differences of the physical properties of air and water flowing through different sizes of holes at different elevations on biased rotations of the flapper valve (1130) to control the duration of the flapper valve (1130) in an open position.